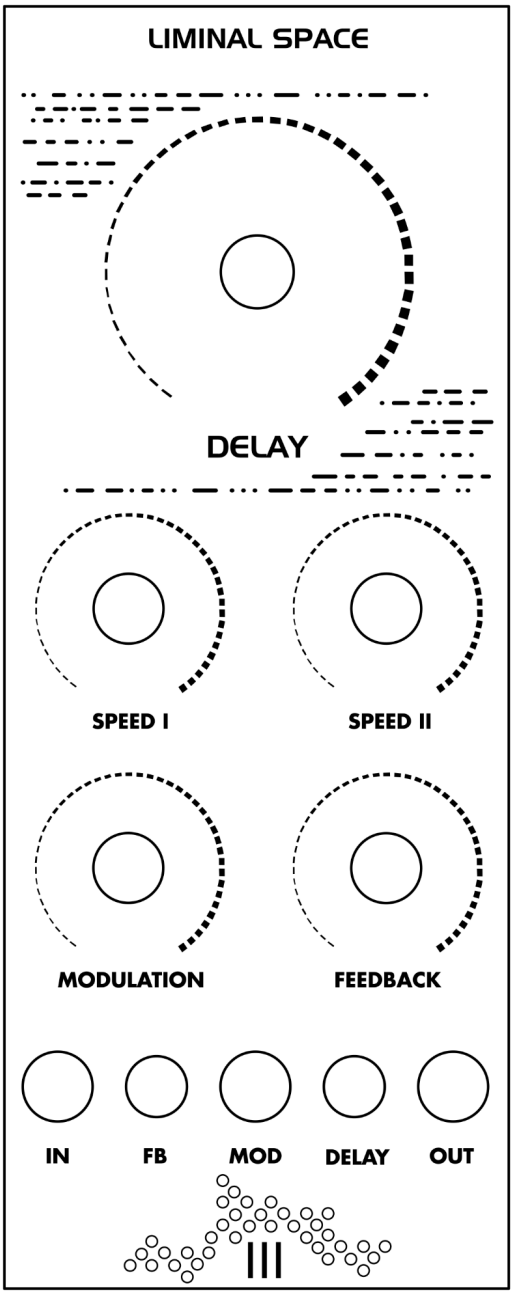
Tre Modular - Liminal Space

User Manual



Thank you for choosing Tre Modular - Liminal Space!

This guide will walk you through the features, and usage of this module.

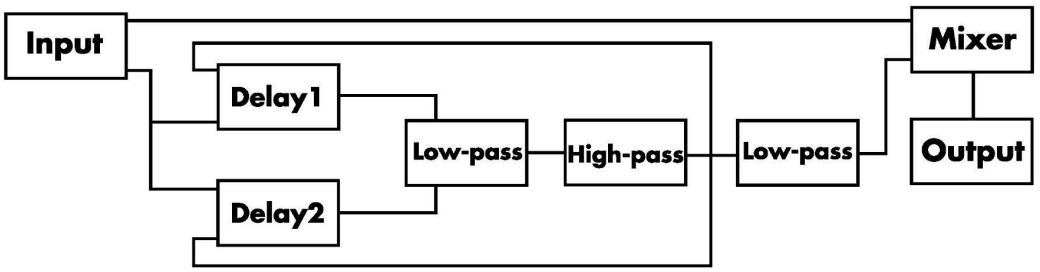
Liminal Space:

Liminal space is a delay module that has two parallel cores that share the same repeat line. Both of these cores are based on PT2399 IC. Even though PT2399 is not an analog IC, we have made sure that Liminal space sounds and feels like classic analog delays of the past. Each of the cores has different supporting circuitry. This changes what sounds get passed through the delay and how fast they fall off. This results in unique interaction between both of the cores. We have also added Modulation input that lets you modulate both channel speeds in an eerie way that is reminiscent of tape flutter.

Filtering and noise:

Usually delay circuits using PT2399 IC have their delay time limited to around 300ms. This is due to PT2399 producing increasingly more noise the longer delay time you set. We did not want to do that. We wanted for you to be able to choose when it is too noisy for you. Liminal space goes up to 1 second delay time. We have worked on eliminating as much noise as possible without sacrificing too much of the high frequency content. Liminal space has two separate filtering stages. One is at the output of delay cores and second one is at the output of combined delayed signal.

Both delayed signals get mixed and passed into low-pass and then high-pass filters. They are set to relatively light filtering and only slightly filter the signal. Signal further is combined and sent to the feedback circuit and also into another more aggressive lowpass filter that goes to the output.



Initial light filters are meant to do initial filtering and to prevent extra noise from building up in the feedback loop as the signal is repeatedly fed back into the delay circuit. The second more aggressive filter removes high frequency content from delayed output signal, both reducing the noise and making it behave similar to classic analog delays. While it does reduce noise it does not eliminate it completely. On longer delay times especially on higher frequency sounds you will hear some noise. It is up to you to decide when there is too much noise.

In addition to output filtering each core has different supporting circuitry. This means that while both cores share the same basic delay structure, they emphasize different frequencies and decay characteristics. With feedback paths being shared between both cores it lets both cores interact in a unique way.

Modulation:

Liminal space features modulation input. We have designed it so that it is as reminiscent of an eerie tape flutter sound as possible. Control signal that you apply to modulation input goes to two destinations in each of the cores. One is input of the IC that is directly responsible for speed of the delay and the second alters the reference voltage of the chip. We have chosen the ratio of signal to each of the destinations so that it produces that nostalgic sound.

Feedback limiter:

We have included a limiter circuit in the feedback path so you can enjoy the feedback signal to its maximum. Whether you adjust the feedback through the dedicated potentiometer or use the max feedback button, the limiter keeps the signal in check. This allows you to push the feedback into self-oscillation smoothly and reliably, without worrying about the signal clipping or distorting harshly.

Specifications:

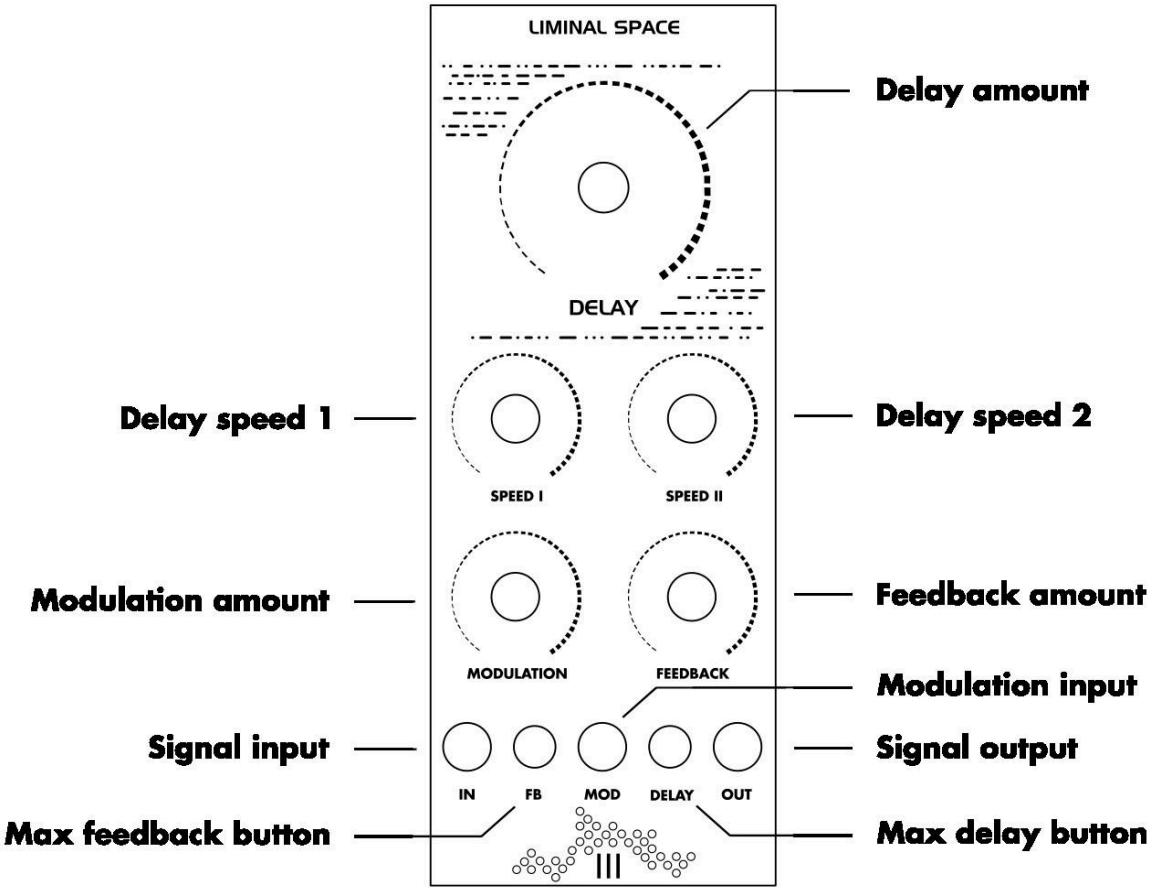
Module width: 10 HP

Module depth: 24mm

Delay MIN/MAX: 25ms/1sec

Modulation input: +-10v

Power Consumption: 60mA at +12V / 8mA at -12V



Controls:

Delay amount: Adjusts the amount of delayed signal.

Delay speed 1: Adjusts delay speed of core nr.1.

Delay speed 2: Adjusts delay speed of core nr.2.

Modulation amount: Adjust the amount of modulation signal.

Feedback amount: Adjust the strength of feedback.

Max feedback button: When pressed, sets feedback to maximum.

Max delay button: When pressed, sets delay amount to maximum.

Inputs/Outputs:

Signal input: Audio signal input.

Modulation input: Modulation signal input.

Signal output: Audio signal output.

Installation:

Power off your Eurorack system.

Insert the module into an available slot.

Connect the power cable, ensuring correct polarity.

Power on your Eurorack system.

Enjoy!

Additional Information:

For any additional questions or support, please contact Tre Modular at support@tremodular.com .

Happy patching!